HIGH-PRECISION OPERATIONAL AMPLIFIER

Check for Samples: OPA2277-DIE

FEATURES

- **Ultra Low Offset Voltage**
- **Ultra Low Drift**
- **High Open-Loop Gain**
- **High Common-Mode Rejection**
- **High Power Supply Rejection**
- **Low Bias Current**
- **Wide Supply Range: ±2V to ±18V**
- **Low Quiescent Current**

APPLICATIONS

- **Transducer Amplifier**
- **Bridge Amplifier**
- **Temperature Measurements**
- **Strain Gage Amplifier**
- **Precision Integrator**
- **Battery Powered Instruments**
- **Test Equipment**

DESCRIPTION

The OPA2277 precision op amp replaces the industry standard OP-177. It offers improved noise, wider output voltage swing, and are twice as fast with half the quiescent current. Features include ultra low offset voltage and drift, low bias current, high common-mode rejection, and high power supply rejection.

The OPA2277 op amp operates from ±2V to ±18V supplies with excellent performance. Unlike most op amps which are specified at only one supply voltage, the OPA2277 is specified for real-world applications; a single limit applies over the ±5V to ±15V supply range. High performance is maintained as the amplifiers swing to their specified limits.

The OPA2277 op amp is easy to use and free from phase inversion and overload problems found in some other op amps. It is stable in unity gain and provides excellent dynamic behavior over a wide range of load conditions. The dual version features completely independent circuitry for lowest crosstalk and freedom from interaction, even when overdriven or overloaded.

ORDERING INFORMATION(1)

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
OPA2277	TD	Bare Die In Waffle Pack(2)	OPA2277TDD1	130
			OPA2277TDD2	10

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI web site at www.ti.com.

(2) Processing is per the Texas Instruments commercial production baseline and is in compliance with the Texas Instruments Quality Control System in effect at the time of manufacture. Electrical screening consists of DC parametric and functional testing at room temperature only. Unless otherwise specified by Texas Instruments AC performance and performance over temperature is not warranted. Visual Inspection is performed in accordance with MIL-STD-883 Test Method 2010 Condition B at 75X minimum.

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

BARE DIE INFORMATION

DIE THICKNESS	BACKSIDE FINISH	BACKSIDE POTENTIAL	BOND PAD METALLIZATION COMPOSITION	BOND PAD THICKNESS
15 mils.	Silicon with backgrind	V-	Aluminium Pad (TiW/AlCu (0.5%))	1100 nm

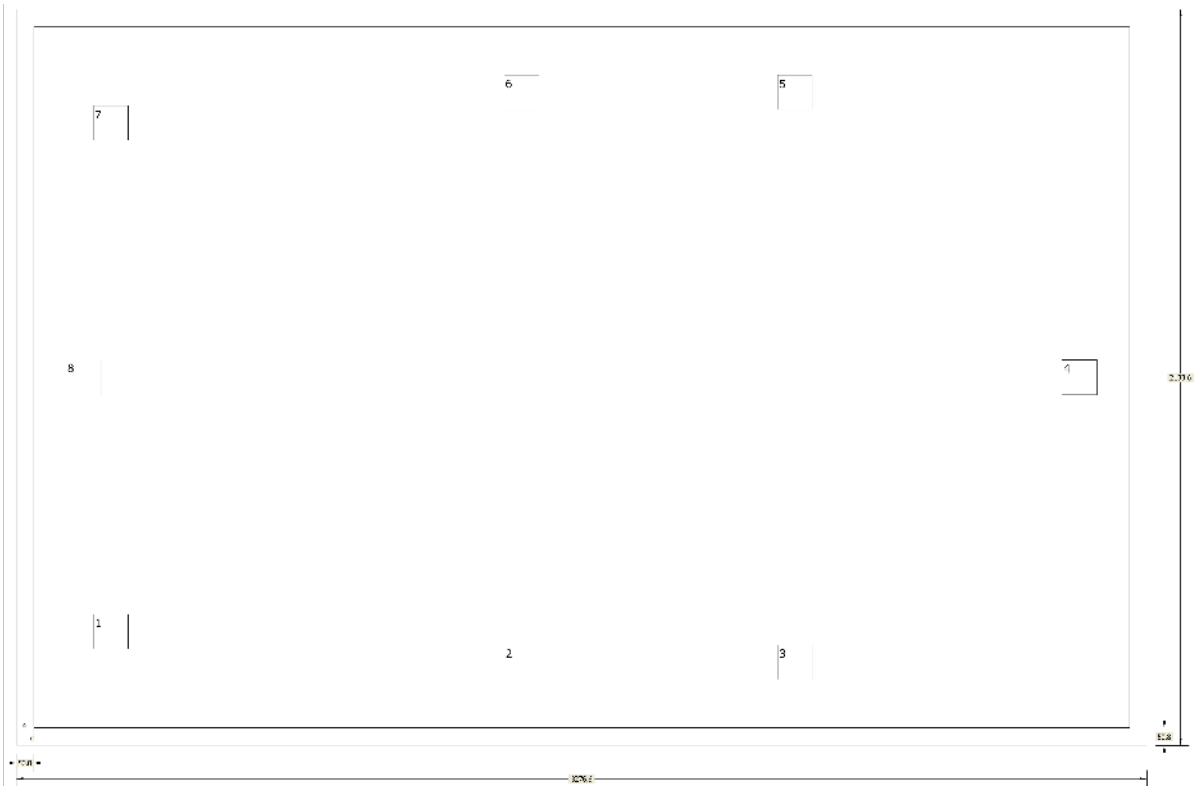

Table 1. Bond Pad Coordinates in Microns(1)

DISCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
Out A	1	-1414.78	-787.4	-1313.18	-685.8
Neg Input A	2	-224.79	-876.3	-123.19	-774.7
Pos Input A	3	567.69	-876.3	669.29	-774.7
V-	4	1391.92	-50.8	1493.52	50.8
Pos Input B	5	567.69	774.7	669.29	876.3
Neg Input B	6	-224.79	774.7	-123.19	876.3
Out B	7	-1414.78	685.8	-1313.18	787.4
V+	8	-1493.52	-52.07	-1391.92	52.07

(1) Substrate V-.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
OPA2277TDD1	ACTIVE			0	130	RoHS & Green	Call TI	N / A for Pkg Type			Samples
OPA2277TDD2	ACTIVE			0	10	RoHS & Green	Call TI	N / A for Pkg Type			Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".
RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.
Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

OTHER QUALIFIED VERSIONS OF OPA2277-DIE :

- Enhanced Product : OPA2277-EP

NOTE: Qualified Version Definitions:

- Enhanced Product - Supports Defense, Aerospace and Medical Applications

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